

A New Rail From Cave Deposits in the North Island of New Zealand.

By R. A. FALLA, Dominion Museum, Wellington.

Bird bones from a limestone cave about 13 miles from Hamilton, North Island, N.Z., discovered in 1948 by a party of the New Zealand Speleological Society led by Mr. H. G. Lambert and presented by the Society to the Auckland Museum, have been sent to me for examination, and I am grateful to the Director of the Auckland Museum, Dr. G. Archey, and to Mr. E. G. Turbott, ornithologist, for the opportunity to describe them.

The circumstances of the discovery have been described in a narrative account by P. Chester (*Newsview*, Auckland, May, 1953) and from it the following extracts are quoted: "High spot of the society's activity is the Karamu Cave, the most extensive one so far discovered in New Zealand. . . . Passages run through it for eight miles . . ." The article continues that: "The Bird Cave got its name from the skeleton of an extinct bird which Lambert and a party found on their second survey of the cave," and gives Lambert's own description as follows: "For four hours we'd lugged photographic equipment through the cave, hoping to find something worth photographing. Eventually we came to a spot below a gallery which we decided to explore. It took us another hour to find a way up. Then we spied the bird skeleton on the floor."

When finally extracted from the limestone matrix of the cave floor the bones were in fragmentary condition, but fortunately an excellent flashlight photograph (Plate 40) was taken by Mr. Lambert before they were disturbed, and this has saved much conjecture as to the probable proportions of the bird. It is a small rail, resembling in general proportions *Cabalus modestus* Hutton, but larger. Pectoral girdle, sternum, and wing-bones are missing, so that its flight potential remains unknown and can only be guessed at. From the fact that the legs have the proportional stoutness found in known flightless rails (*Gallirallus*, *Cabalus*) a similar condition might be inferred. The bones available may from their position *in situ* be referred to one individual. They are:—

Skull: Right half cranium with occipital foramen intact; premaxilla and mandibles complete but now in fragments tending to crumble because of their original light cancellated structure.

Vertebrae: Axis, atlas, ten other cervicals, and the last three free dorsals.

Pelvis: Almost complete.

Hind limbs: Right femur complete; left tibia, proximal end only; right tibia, distal end only; right tarsometatarsus complete.

Dimensions of these bones are included in the following description.

Capellirallus, new genus.

Generic characters: Bill long (ratio of premaxilla to length of rest of skull, 2:1) decurved, tapering to blunt, rather flattened tip; possibly flexible and sensitive in life. Pelvis narrow (width 38% of total length compared with 45% in *Rallus* (*philippensis*)). Tarsometatarsus comparatively short, and, as in *Gallirallus*, lacking prominent outer "ridge" of *Rallus*. Type: *Capellirallus karamu* n. sp.

Capellirallus karamu n. sp.

Characters as given above for the genus. Available bones have the following dimensions:

Tarsometatarsus.—Length, 39.0; prox. w., 6.7; distal w., 7.0; med. w., 3.8 mm.

Tibia (parts of 2 bones used). Probable length, 65 (more or less); prox. w., 10.3; dist. w., 6.0; med. w., 3.5 mm.

Femur.—Length, 44.3; prox. w., 7.6; dist. w., 8.0; med. w., 3.8 mm.

Pelvis.—Length, 38; greatest width, 20; narrowest, 8.6 mm.

Skull.—Diameter of occipital foramen, 6; interorbital width, 5.7; total skull length (tip of bill to occiput), 88; premaxilla, 56 mm.

Holotype: An incomplete skeleton, Auckland Museum (No. 901.1).

Distribution

It seems likely that this rail had a wide distribution, at least in the North Island. From a large collection of bird bones obtained in limestone caves at Coonoor, near Dannevirke, in 1914, and sent to the Dominion Museum, Mr. J. C. Yaldwyn has lately sorted out a number of bones not referable to any described species. Some of them are clearly referable to *C. karamu*. They are in a better state of preservation than is the type material and consist of:

A complete cranium (C.130).

Right femur (C.132).

Matching pair of tarsometatarsi (C.129).

Right tarsometatarsis (C.129).

Complete pelvis (C.131).

I am also indebted to Mr. Yaldwyn for drawing my attention to an additional record from a collection of bones made by Mr. A. M. Hall in a limestone cave at Waitanguru, Waitomo, in 1949. These are some bones of an individual skeleton (133) consisting of fragments of pelvis, portions of both femora, pair of tarsometatarsi, and both tibiae. One of the tibiae is complete. Dimensions of the additional material, which show little variation from those given for the type, are here given for comparison.

A. Coonoor

Cranium.—Length, paroccipital to fronto-facial suture, 33; width (parietal), 20.5 mm.

Right femur.—L., 43.5; dist. w., 7.5; prox., 8.5; mid., 3.3 mm.

Tarsometatarsus (2 individuals).—(a) L., 39; prox., 6.5; mid., 4; dist., 7.5 mm.
(b) L., 37; prox., 6.5; mid., 3.7; dist., 7 mm.

Pelvis.—Length, 36; greatest width (post-acetabular), 78; least width (mid-iliac), 9 mm.

B. Waitanguru

Femur.—Mid., 3.5; dist., 8 mm.

Tibia.—L., 65; prox., 9; mid., 3.2; dist., 6 mm.

Tarsometatarsus.—L., 39; prox., 7; mid., 4; dist., 7.2 mm.

The type material, although in general less well preserved, is more completely representative of an individual bird, possessing the only known remains to date of the highly distinctive beak.

Relationships

The absence of any identifiable sternum and of all wing bones makes it difficult to offer any useful comparison between the rail and related forms. One respect in which comparison can be made is in length of hind limb bones and proportions of hind limb bones one to another. If the tibia is taken as 100 in all cases, femur and metatarsus measurements in several species can be expressed as follows:

			Femur.	Metatarsus.
<i>Hypotaenidia philippensis</i>	..		71	63
<i>Hypotaenidia</i> sp.	..	..	80	64
<i>Nesolimnas dieffenbachi</i>	..	..	76	59
<i>Cabalus silvestris</i>	..	..	72	58
<i>Ocydromus australis</i>	..	..	70	56
<i>Ocydromus greyi</i>	..	..	68	58
<i>Rallus karamu</i>	69	62

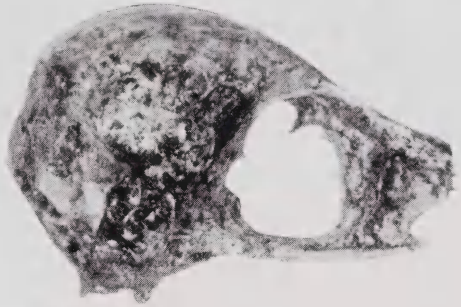


Photograph of type specimen *in situ*.

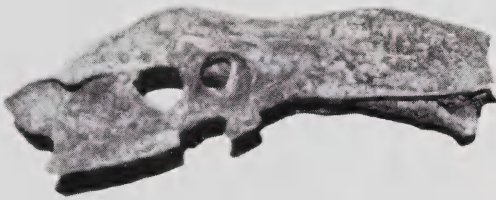
Photo: H. G. Lambert.



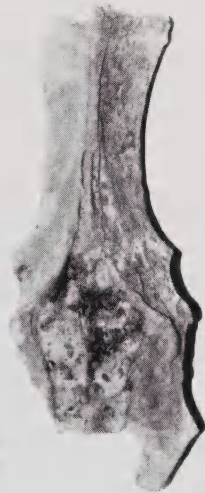
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Capellirallus karami (type). 1. Cranium (from above). 2. Cranium (side view).
3. Pelvis (side view). 4. Pelvis (from above).



Capellirallus karamu (type). 1. Right tarsometatarsus (from front). 2. Right femur (from above). 3. Left tibia, prox. end (from behind). 4. Right tibia, dist. end (from front).

Photos: C. Hale, Dominion Museum.